

# The Burden Of Heart Disease And Stroke In South Carolina

South Carolina Department of Health and Environmental Control  
Division of Cardiovascular Health  
**2006 Edition**



*The Heart of*  
**South Carolina**  
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# The Burden Of Heart Disease And Stroke In South Carolina

## Table of Contents

I.	Executive Summary.....	2
II.	Trends in Cardiovascular Disease .....	3
	Cardiovascular Disease	
	Coronary Heart Disease	
	Stroke	
III.	Health Disparities in Cardiovascular Disease.....	7
IV.	Risk Factors for Cardiovascular Disease.....	8
	Physical Inactivity	
	Poor Nutrition	
	Tobacco Use	
	High Blood Pressure (Hypertension)	
	High Cholesterol	
	Overweight/Obesity	
	Diabetes	
	Risk Factor Clustering	
V.	Cost of Cardiovascular Disease in South Carolina.....	12
VI.	Barriers to Cardiovascular Disease Prevention.....	14
	No Health Insurance	
	Health Care Cost	
VII.	Data Sources and Methods .....	16
VIII.	Data Resources for Cardiovascular Disease.....	18
IX.	Glossary .....	20

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# Executive Summary:

## Cardiovascular Disease In South Carolina

According to the American Heart Association, one in three adults have some form of cardiovascular disease. A total of 12,597 people in South Carolina died of cardiovascular disease (CVD) in 2004, making it the leading cause of death in the state. During that same year, cardiovascular disease accounted for 86,417 hospitalizations of South Carolinians. The economic costs of cardiovascular disease nationwide are staggering. For 2006, the American Heart Association estimated that the cost of cardiovascular diseases nationwide would be \$403.1 billion in direct and indirect costs; this figure includes hospitalizations, physician services, medications, and lost productivity.

In 2002, South Carolina ranked second in the nation for stroke deaths and fourteenth in deaths from cardiovascular disease. Cardiovascular disease causes over 34 percent of all deaths in South Carolina, making it the leading cause of death in the Palmetto State. Portions of South Carolina, North Carolina, and Georgia associated with high stroke mortality rates have become known as the “Stroke Belt.” The Pee Dee and coastal areas of South Carolina have an exceptionally high rate of stroke death, designating this region the “Stroke Buckle” of the “Stroke Belt.” Those who suffer from, but do not die of, cardiovascular disease will almost certainly suffer a reduced quality of life. Recovering from cardiovascular disease requires significant lifestyle changes for both the sufferer and perhaps his or her family. Indeed, South Carolina’s condition is critical in terms of cardiovascular health.

Particularly hard-hit by cardiovascular disease are African-Americans, who represent 30 percent of South Carolina’s population and 12 percent of the nation’s people. African-Americans carry a disproportionate burden of CVD deaths, hospitalizations, and risk factors. They also face higher risks of developing ischemic heart disease and suffer stroke deaths more often than whites. African-Americans in South Carolina had a 73 percent higher stroke death rate than the national average in 2003.

In response to the crisis, the South Carolina Division of Cardiovascular Health (CVH Division) has been developing goals and objectives that address cardiovascular disease. Committed to improving cardiovascular health in South Carolina, the CVH Division was established in 1998 and has worked through established partnerships within the state. Based on the significant toll that CVD takes on South Carolina residents, the South Carolina Department of Health and Environmental Control (DHEC), in collaboration with its partners, is ready to implement a comprehensive action plan to address the challenges of this disease.

This report is a description of the impact of cardiovascular disease in South Carolina, including modifiable risk factors, trends, and disparities. When available, comparisons between race, gender, age, state data and the national public health goals outlined in Healthy People 2010 (HP 2010) have been provided. The report was developed in collaboration with the CVH Data/Risk Factor Subcommittee. The CVH Division’s focus is on promoting community, institutional, and environmental change in the areas of physical inactivity, poor nutrition, tobacco use, hypertension, and high cholesterol. Data resources to support the efforts of the CVH Program and their communities are provided in this burden report. It is our intent that these efforts will help improve the cardiovascular health of South Carolina’s citizens.

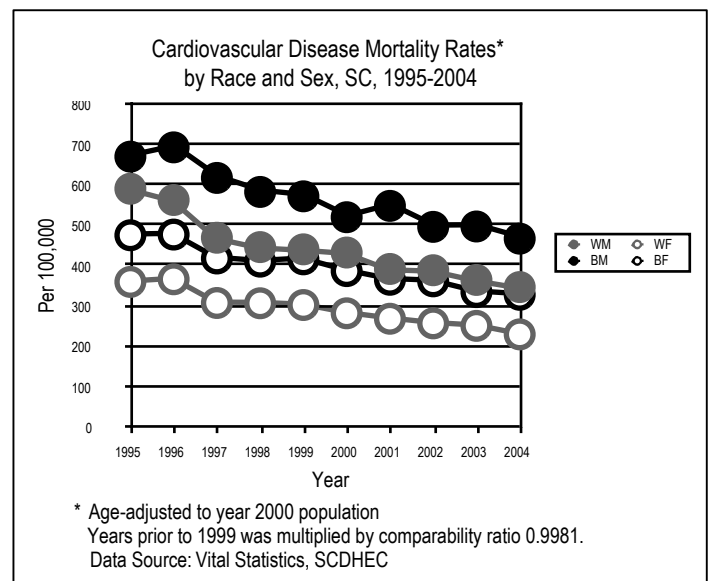
# Trends In Cardiovascular Disease

## Introduction

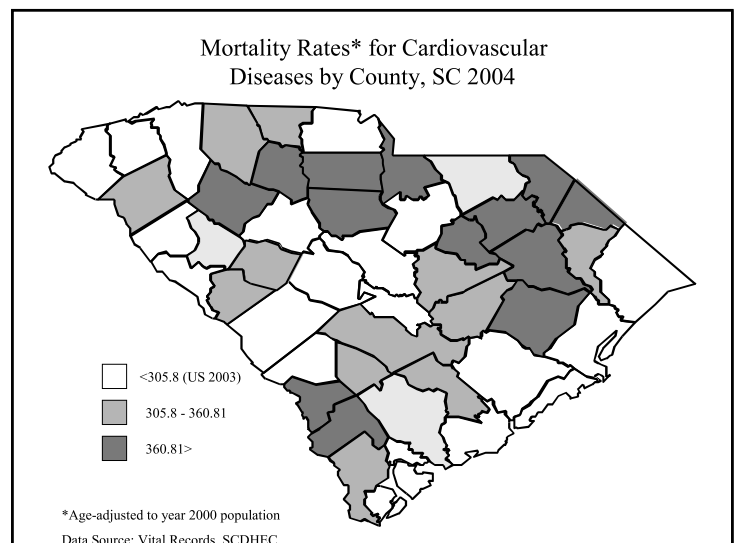
In 1900, the leading cause of death in the United States was pneumonia, killing 11.8 percent of the population. Cardiovascular disease was ranked fourth that year, causing only 6.2 percent of deaths in Americans. By 1997, cardiovascular disease had become the leading cause of death in the United States and in South Carolina. Referred to as one of the states in the “Stroke Belt,” South Carolina has a high stroke mortality rate, especially among African-Americans. In 2004, cardiovascular disease killed more people in South Carolina than all forms of cancer, pneumonia, influenza, and car accidents combined. Furthermore, both cardiovascular disease morbidity and mortality increase with age, and the population is aging rapidly. Within the next 25 years, the number of South Carolina citizens over age 60 is expected to double from 718,375 in 2004. Because of South Carolina’s population distribution, cardiovascular disease prevention and control presents specific challenges among minorities and the elderly.

## Cardiovascular Disease

Death from cardiovascular diseases accounted for about 34 percent of all deaths in South Carolina with more women dying from cardiovascular disease than men in 2004, making it a killer for both sexes and not just a “man’s disease.” More specifically, coronary heart disease caused approximately one in six deaths in the state with African-American men more likely to die from coronary heart disease than other groups. Additionally, stroke was responsible for 7 percent of all deaths, with more men likely to die from stroke than women. African-Americans were more likely to die than whites.



Overall, cardiovascular disease mortality rates in South Carolina dropped by 36 percent, from 479 per 100,000 population in 1995, to 306 per 100,000 population in 2004. However, South Carolina’s cardiovascular disease mortality rate of 325.4 per 100,000 population in 2003 was higher than the 2003 national rate of 305.8 per 100,000 population (most recent year available for US).

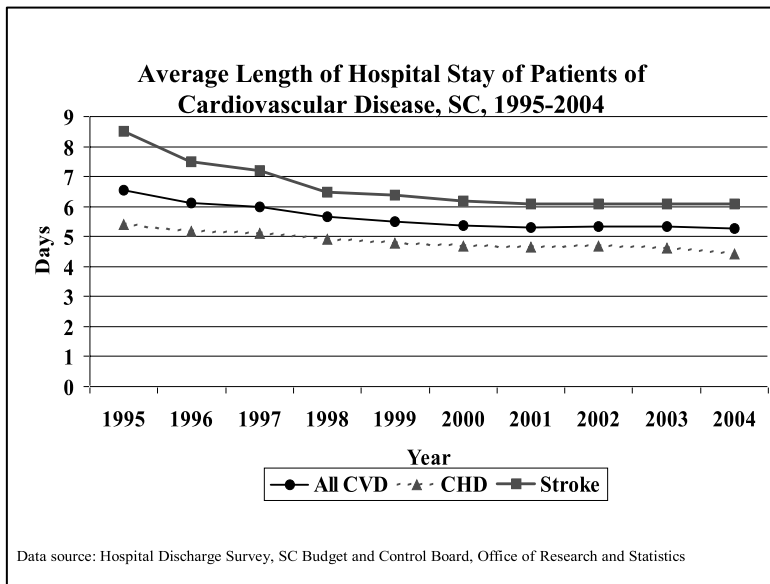
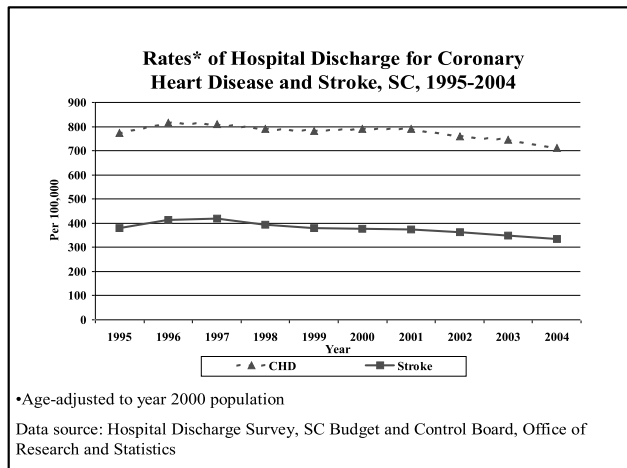


# Trends In Cardiovascular Disease

In 2004, the age-adjusted mortality rate for the state was 306 per 100,000 population. Eighteen counties had mortality rates less than the state average. Marlboro (497.8), Dillon (468.8), and Florence (430.4) counties had the highest mortality rates.

In 2004, there were 86,417 hospital discharges for cardiovascular diseases, accounting for 16 percent of total hospital discharges. Cardiovascular diseases accounted for 17 percent of hospital admissions among whites, while 15 percent of hospitalized African-Americans were admitted because of cardiovascular disease.

The number of patients who were diagnosed with cardiovascular disease increased from 1995 to 2004. Moreover, the hospitalization age-adjusted rates of patients diagnosed with cardiovascular disease decreased ten percent, from 2,238 per 100,000 population in 1995, to 2,014.8 per 100,000 population in 2004.

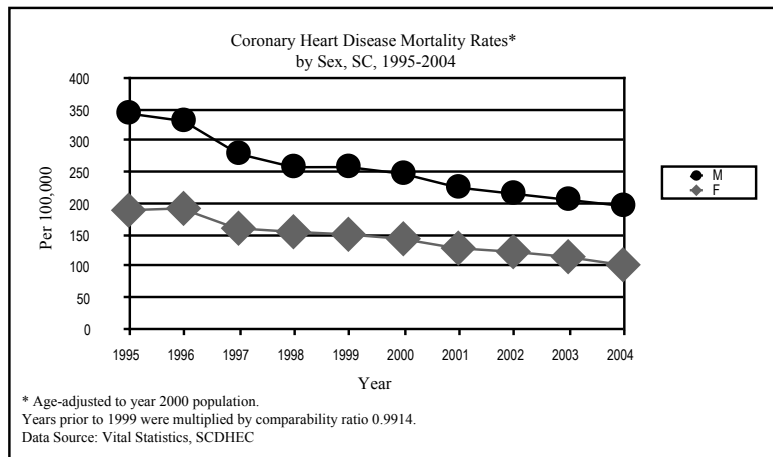


The total number of hospital days for CVD patients has decreased from 1995 to 2004. The average length of hospital stay per patient for coronary heart disease, stroke and other cardiovascular diseases has dropped by 18-28 percent from 1995 to 2004.

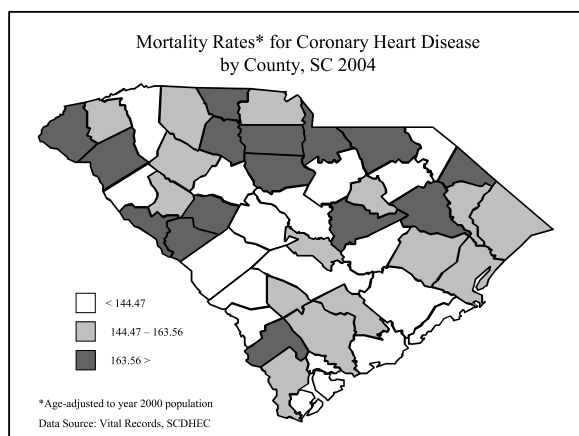
# Trends In Cardiovascular Disease

## Coronary Heart Disease

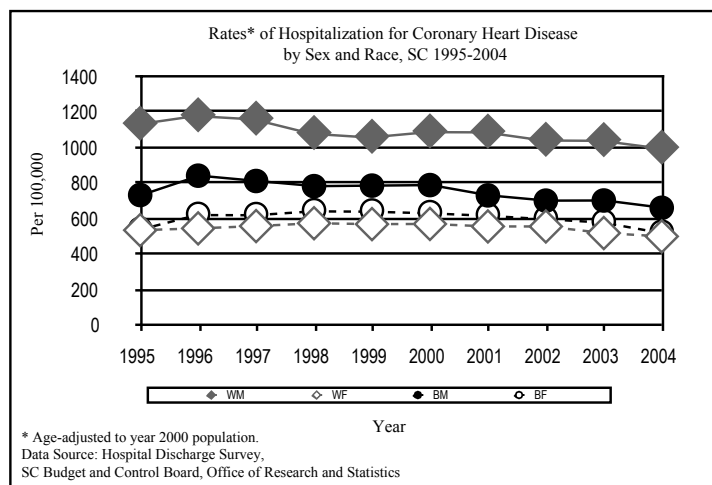
Includes hypertensive heart disease, acute myocardial infarction, other acute and subacute ischemic heart disease, old myocardial infarction, angina pectoris, and other chronic ischemic disease.



- Overall, from 1995 to 2004, coronary heart disease mortality rates decreased more than 59 percent.
- Coronary heart disease mortality rates are still greater among men than women.
- In 2004, the age-adjusted coronary heart disease mortality rate for the state was 144.2 per 100,000 population. This is lower than the Healthy People 2010 Objective of 162 per 100,000 population.



- Thirty-one counties had lower coronary heart disease mortality rates than the Healthy People 2010 Objective, with Beaufort having the lowest at 87.9 per 100,000 population.
- Fairfield (250.4), Chester (222.1), and Florence (204.2) counties had the highest mortality rates in 2004.
- In South Carolina hospitals, the number of patients with coronary heart disease increased from 1995-2004.
- From 1995 to 2004, the rates of patients hospitalized for coronary heart disease has decreased for whites (32 percent), and for African-Americans by 13 percent.
- White males have significantly higher hospitalization rates than other race and sex groups.

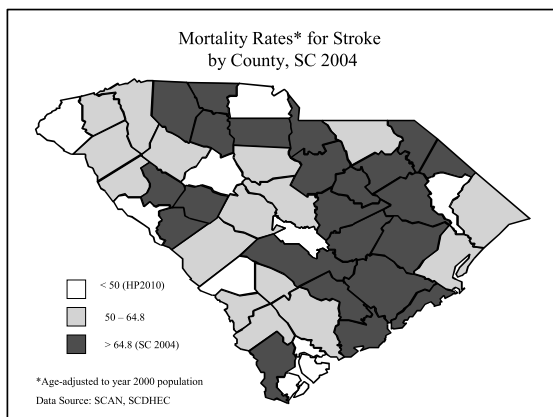
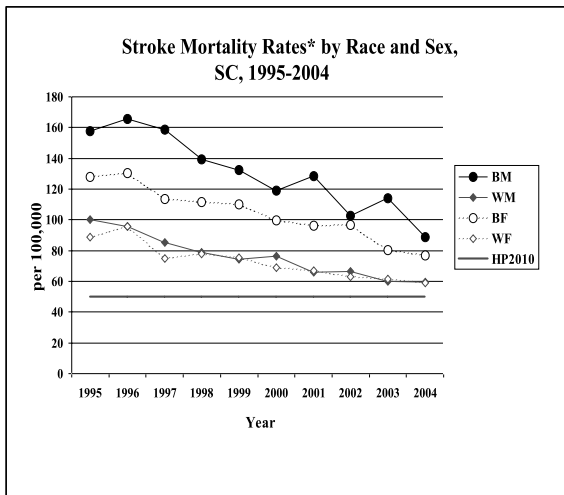


# Trends In Cardiovascular Disease

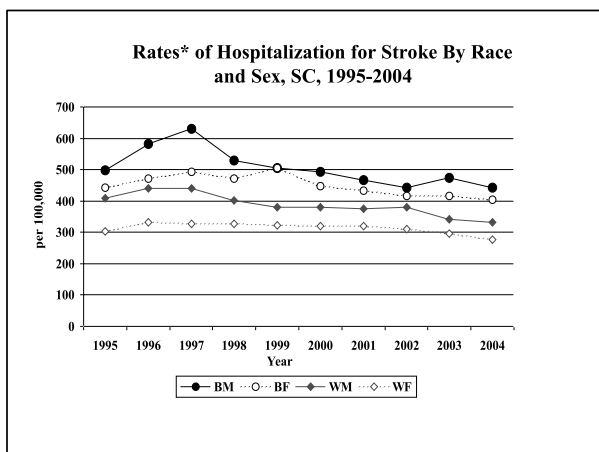
## Stroke

South Carolina is one of the states in the “Stroke Belt,” and had the second highest stroke mortality rate in the U.S. in 2002. Stroke, or cerebrovascular disease, is the third leading cause of death in South Carolina, resulting in 2,631 deaths in 2004.

\* Age-adjusted to year 2000 population  
Years prior to 1999 were multiplied by comparability ratio 1.0588.  
Data Source: SCDHEC SCAN



- Stroke mortality rates in South Carolina for all race and sex groups were greater than the 2010 national objective of 50 deaths per 100,000 population.
- Stroke mortality was higher among African-Americans than whites. At a rate 33 percent higher than that of white men, African-American men had the highest stroke mortality rate in all of the race and sex groups.
- In 2004, the age-adjusted stroke mortality rate for the state was 64.8 per 100,000 population, while the Healthy People 2010 goal is 50 per 100,000 population.
- Counties with a high stroke mortality rate appear as a “belt” from the northeast to the southwest portions of South Carolina.
- Barnwell, Newberry, Oconee, Calhoun, York, Beaufort, McCormick, and Marion counties had lower than the HP 2010 goal of 50 stroke deaths per 100,000 population in 2004.
- Clarendon (199.9), Lee (107.9), Union (107), and Dillon (104.4) counties had the highest mortality rates for stroke in 2004.
- The number of stroke patients discharged from South Carolina hospitals increased 7 percent from 1995-2004. In 1995, the rate was 423.4 per 100,000 population, and by 2004, it had decreased to 334.3 per 100,000 population.
- Of the four race and sex groups in 2004, white women had the lowest hospital discharge rates for stroke, while African-American men had the highest rates.
- Disparities in hospitalization rates for stroke were the greatest for the middle-aged population; within the middle-aged population group, African-American men aged 55 had a hospitalization rate comparable to white women 10 years older.

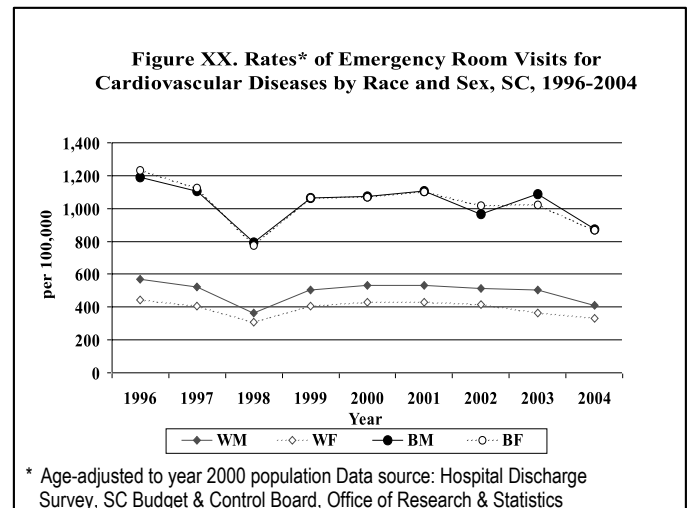
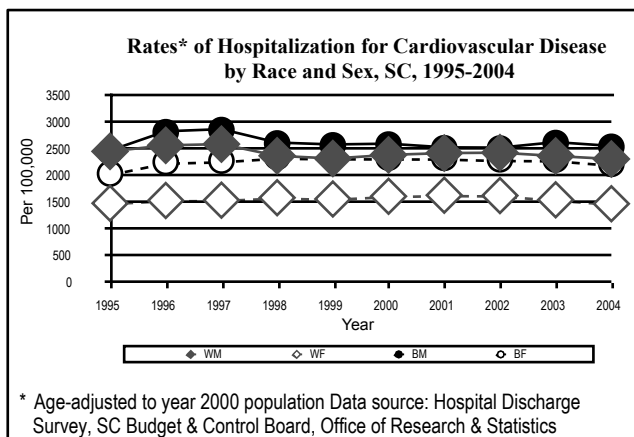
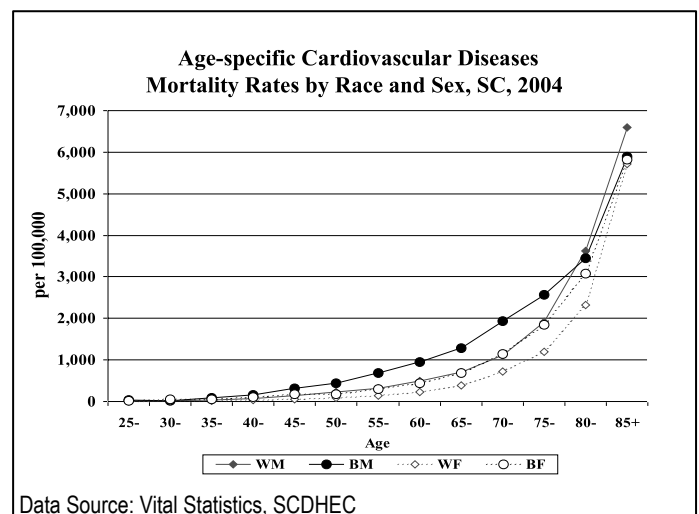
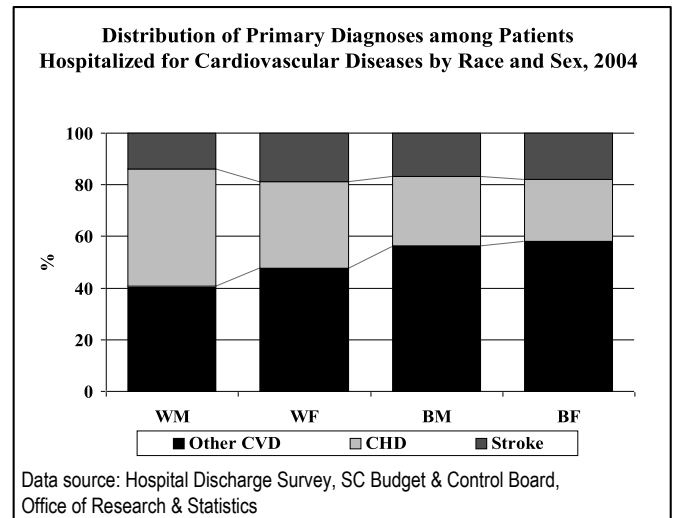


\* Age-adjusted to year 2000 population  
Data source: Hospital Discharge Survey,  
SC Budget & Control Board, Office of Research & Statistics

# Health Disparities In Cardiovascular Disease

Unfortunately, some groups face higher risks of suffering the consequences of CVD than others. Representing 30 percent of South Carolinians, African-Americans suffer disproportionately from cardiovascular disease. African-Americans are at an increased risk of developing heart disease and stroke across all age groups and in all age, gender, race and socioeconomic groups.

- African-American men, whose mortality rate in 2004 was more than 50 percent greater than that of white women, had the highest age-adjusted mortality rate from cardiovascular diseases in all race and sex groups.
- African-American men and women had higher age-specific mortality rates than their counterparts. African-American men are more likely to die from cardiovascular disease 10 years before white women.
- African-Americans had higher hospitalization rates for cardiovascular disease than whites. In 2004, the hospitalization rates for African-American men were 9 percent higher than white men, while African-American women were 33 percent higher than white women.
- Substantial racial disparities were apparent in the rate of emergency room (ER) visits for CVD. African-Americans visited the ER for CVD more than twice as often as did whites.

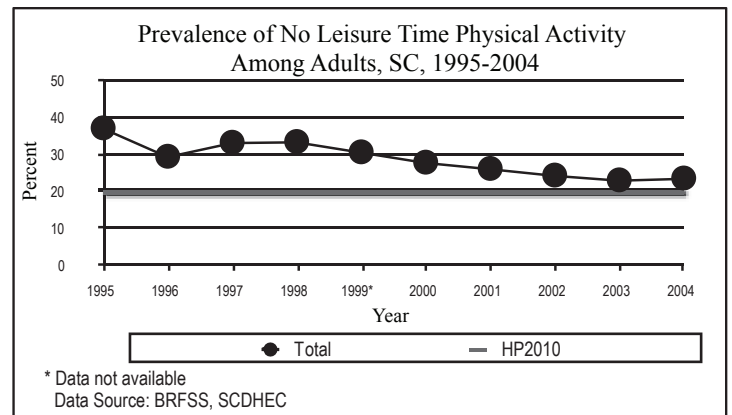


# Risk Factors For Cardiovascular Disease

Cardiovascular diseases (principally coronary heart disease and stroke) are the nation's most common causes of death for men and women of all racial and ethnic groups. The American Heart Association estimates that at least 71.3 million Americans in 2003 had some form of cardiovascular disease, including high blood pressure. Studies have identified several factors that increase the risk of developing cardiovascular disease. Some of these risk factors can be modified or prevented. The most common modifiable risk factors for CVD are: physical inactivity, poor nutrition, tobacco use, high blood pressure (hypertension), high cholesterol, overweight/obesity, and diabetes. The health-related behaviors that can be modified to lower the risks of developing cardiovascular disease are addressed in this section.

## Physical Inactivity

Physical inactivity is a term used to identify people who do not engage in any physical activity during their leisure time. Physically inactive people are twice as likely to develop coronary heart disease than physically active ones. Despite the well-publicized benefits of physical activity, current data shows little improvement in physical activity patterns among Americans over the past 20 years. The prevalence of physical inactivity among adults remains high in the U.S. and South Carolina.

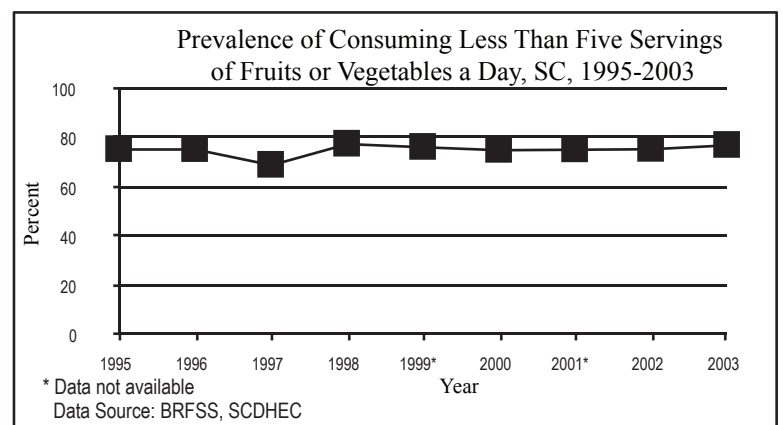


- Up to 250,000 of all deaths per year in the United States were related to cardiovascular disease—about 12 percent of total deaths per year—can be attributed to a lack of consistent physical activity.
- Approximately one out of four adults in South Carolina were physically inactive (no leisure time physical activity) in 2004.
- African-Americans, especially women, had a higher prevalence of physical inactivity than whites.
- To lower the risk of developing heart disease or stroke, 68.7 percent of adults reported being more physically active in 2004.
- To reduce the risk of cardiovascular disease, 34.9 percent of South Carolina adults reported that they were advised by their doctor to exercise more to lower their risk of developing heart disease or stroke in 2004.

## Poor Nutrition

A diet high in fat and cholesterol increases the risk for coronary heart disease, stroke, and diabetes.

- In 2003 (latest year available), approximately three out of four adults



# Risk Factors For Cardiovascular Disease

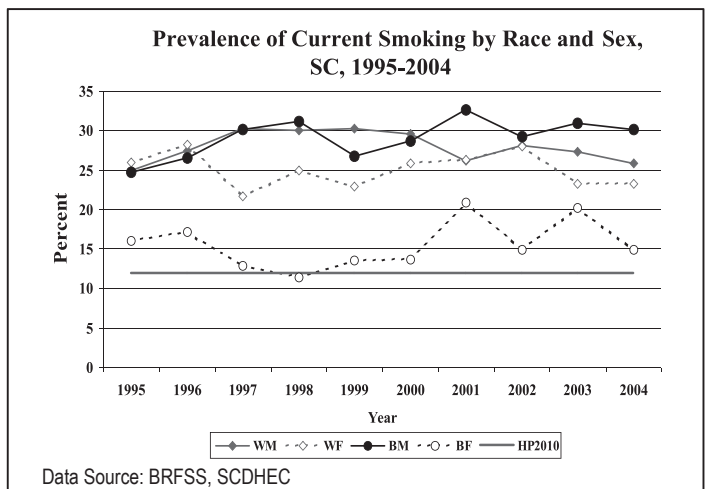
(77.7 percent) in South Carolina did not eat the recommended amount of fruits and vegetables, which is similar to the nationwide prevalence rate of 77.4 percent (2003 data).

- In 2004, 33 percent of South Carolina adults were advised by their doctor to eat more fruits and vegetables to lower their risk of developing heart disease or stroke.
- Although the majority of adults in the state do not meet the recommendations of 5-A-Day, 77.8 percent of South Carolina adults reported eating more fruits and vegetables to lower their risk of developing heart disease or stroke.

## Tobacco Use

Cigarette smoking is the most important preventable cause of premature death in the United States, accounting for about 440,000 of the more than 2 million annual deaths. With evidence that smokers have two to four times the risk of developing coronary heart disease than nonsmokers and double the risk for a stroke, cigarette smoking is the most frequent cause of cardiovascular disease. Smoking cessation can reduce the risk of repeat heart attacks and death from heart disease by 50 percent or more.

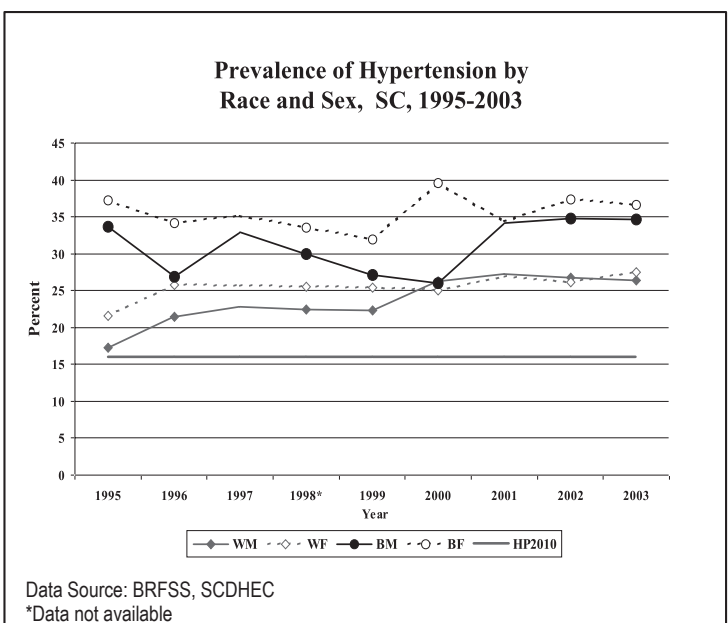
- In South Carolina, 24.3 percent of adults are current smokers, which is higher than the nationwide median of 20.8 percent in 2004, and significantly higher than the Healthy People 2010 objective (12 percent).
- Overall, men had a higher prevalence of smoking than women.



## High Blood Pressure (Hypertension)

High blood pressure (hypertension) killed 49,707 Americans in 2002. People with uncontrolled high blood pressure have three to four times the risk of developing a heart disease and as much as seven times the risk of suffering a stroke as those with normal blood pressure. Many people have hypertension for years without knowing they are at increased risk, increasing the likelihood of developing heart disease and stroke while their hypertension is uncontrolled.

The overall prevalence of hypertension increased from 1995 to 2003, from 23.5 percent in 1995 to 28.8 percent in 2003 (most recent year available).



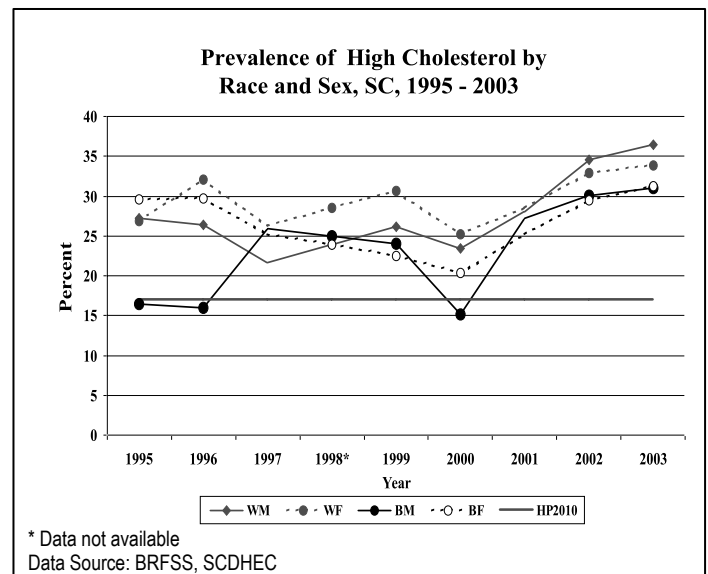
# Risk Factors For Cardiovascular Disease

For 2003, 28.8 percent of adults in South Carolina had hypertension, which is higher than the nationwide median of 24.8 percent and significantly greater than the Healthy People 2010 objective of 16 percent.

## High Cholesterol

High blood cholesterol is a major risk factor for heart disease. In fact, the higher the blood cholesterol level, the greater the risk for developing heart disease or having a heart attack. Every 1 percent reduction in total cholesterol is linked to a 2 percent decrease in CVD risk.

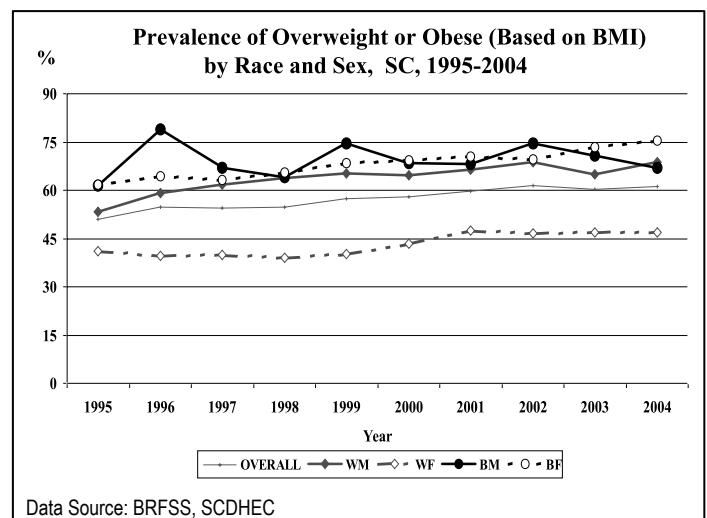
- The overall prevalence of high cholesterol increased from 26.2 percent in 1995 to 33.4 percent in 2003 (latest year available) among adults.
- Approximately 22.2 percent of South Carolina adults have not had their cholesterol checked within the past five years.



## Overweight/Obesity

Overweight is now recognized as a major contributor to cardiovascular diseases, and associated with considerable health risks and the prevalence of overweight and obesity has been constantly increasing nationwide since 1996. Adults with a Body Mass Index (BMI) of 25 or greater are considered as overweight; those who have a BMI over 30 or greater are considered obese. Today, nearly seven of every 10 U.S. adults are overweight, placing them at substantial risk of developing illnesses such as high blood pressure, high cholesterol, heart disease, stroke, and Type II diabetes.

- The prevalence of overweight or obese in the state has increased from 51.1 percent in 1995 to 61.3 percent in 2004, which is higher than the nationwide median of 59.9 percent.
- In South Carolina, 36.2 percent of adults are overweight (BMI 25 – 29.9) and 25.1 percent of adults are obese (BMI 30+) in 2004.
- The prevalence of obesity is significantly higher for African-Americans compared to whites and the nationwide median.

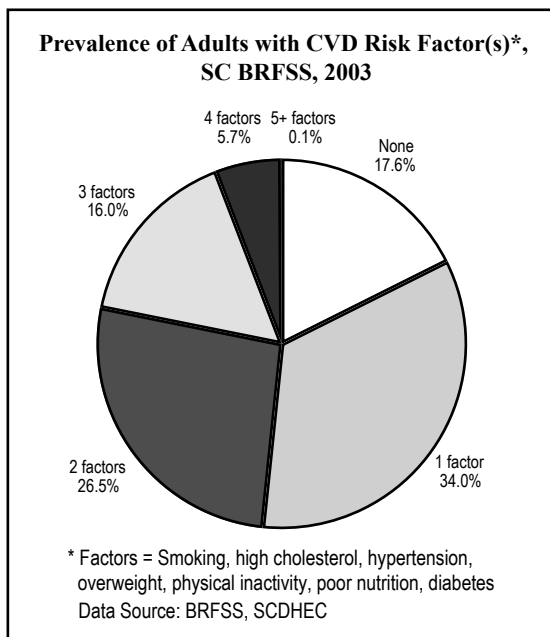
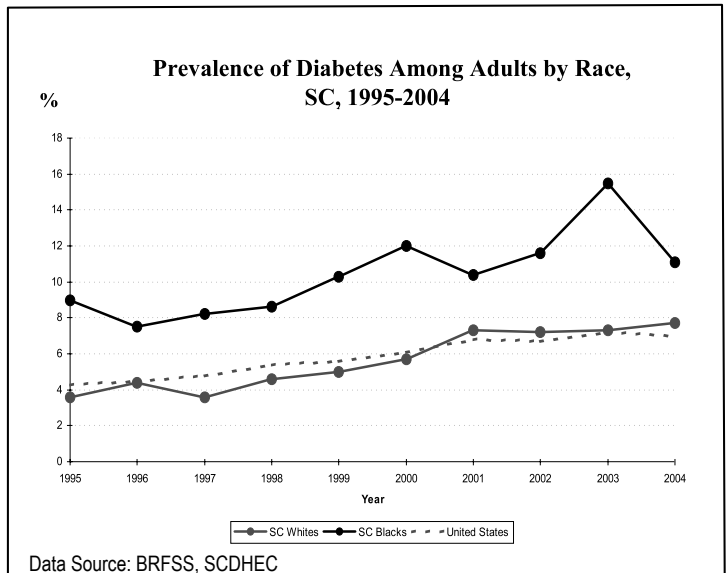


# Risk Factors For Cardiovascular Disease

## Diabetes

South Carolina has one of the highest diabetes prevalence rates in the U.S. Approximately 326,000 adults in South Carolina have been diagnosed with diabetes and another 160,000 are not aware that they have the disease. According to the American Heart Association, clinical and statistical studies have found a strong correlation between high blood pressure, high cholesterol levels, and diabetes. These variables have always been major risk factors for stroke and are recognized as significant risk factors for coronary heart disease. Individuals with diabetes are at a twofold to fourfold increased risk of cardiovascular disease compared with individuals without diabetes.

- In South Carolina, approximately 8.3 percent of all adults reported having diabetes in 2004.
- The prevalence of diabetes in South Carolina is significantly higher for African-Americans compared to whites and the U.S. prevalence rate for adults.
- African-American females had the highest prevalence of diabetes (12.6 percent) among all race and sex groups for adults in 2004.



## Risk Factor Clustering

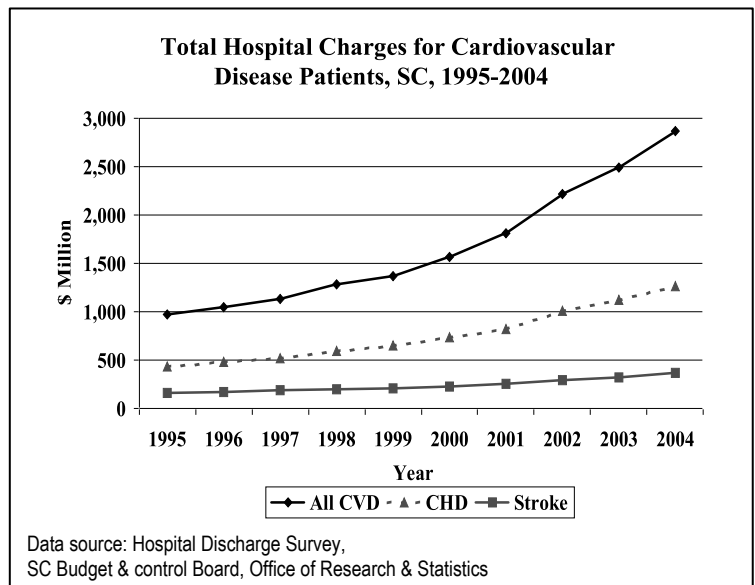
Each risk factor can independently increase the risk of developing cardiovascular diseases as well as exacerbate other risk factors. This phenomenon is known as risk factor clustering, which greatly increases the risk of heart disease and stroke because the more risk factors a person has, the greater his or her chance of developing cardiovascular diseases becomes.

- In 2003 (latest year available), only 17.5 percent of adults in South Carolina did not report any cardiovascular disease risk factors.
- Nearly half of South Carolina adults reported having two or more CVD risk factors.
- Six percent of South Carolina adults reported having four or more CVH risk factors.

# Cost Of CVD In South Carolina

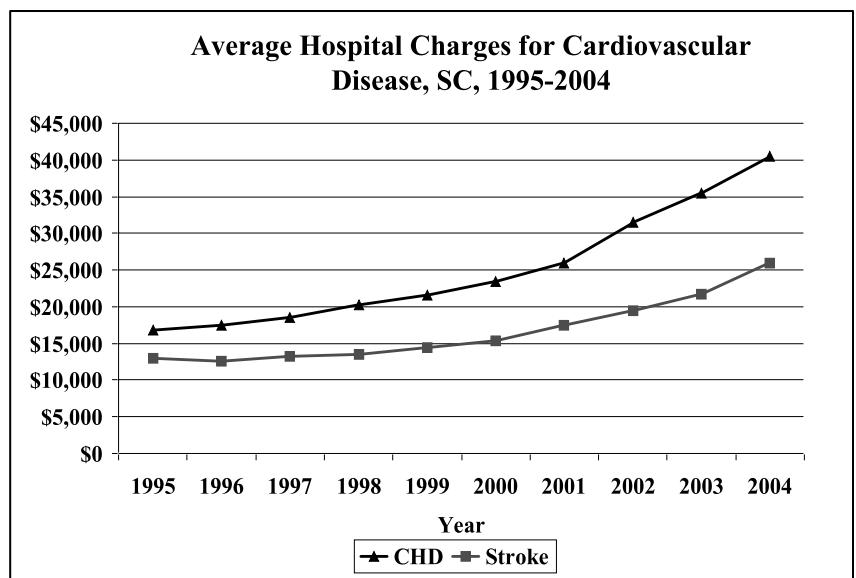
The economic costs of cardiovascular disease are staggering. The estimated economic cost of cardiovascular diseases in the United States for 2006 is \$403.1 billion, including health care costs and loss of productivity resulting from illness and death. Sudden death due to cardiac arrest, while not as costly as lingering illnesses caused by CVD, can be financially and emotionally devastating to surviving families. The average cardiac arrest victim is approximately 60 years old, an age at which many people are still quite productive. Medical care for hospitalized patients suffering from cardiovascular disease imposes a heavy direct economic burden in South Carolina.

- In 2004, cardiovascular disease alone was responsible for hospital charges totaling \$2.8 billion (primary diagnosis of CVD). Of those charges, \$1.2 billion (44 percent) was for coronary heart disease and \$368 million (13 percent) was for stroke.
- Total hospital charges for treatment of cardiovascular disease patients increased by 196 percent from 1995 to 2004.
- Charges for coronary heart disease and stroke increased by 192 percent and 132 percent, respectively from 1995 to 2004.



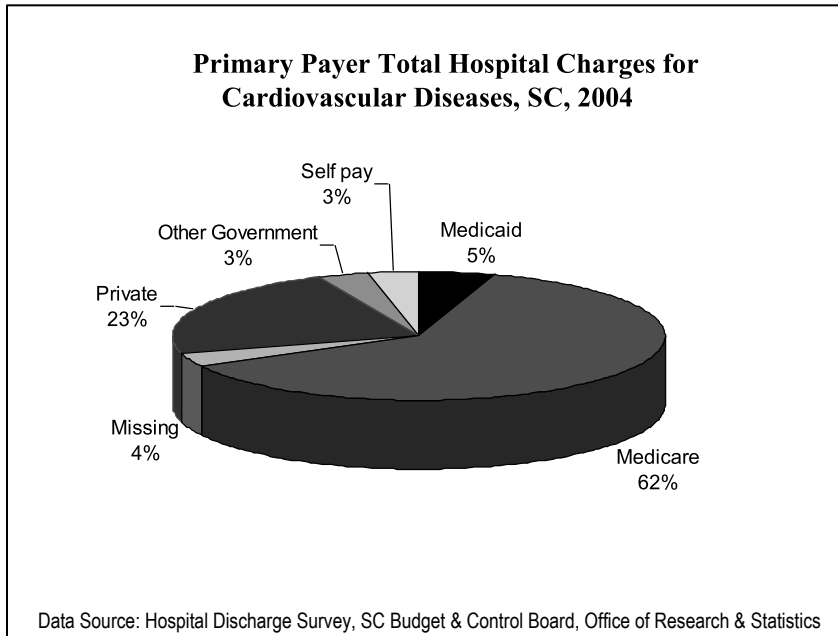
An increase in the number of patients and a rise in the average hospital charges per patient contributed to the dramatic increase in total hospital charges for cardiovascular disease treatment from 1995 to 2004.

- The average hospital charges for coronary heart disease have increased 58 percent from \$16,846 in 1995 to \$40,554 in 2004.
- The average hospital charges for stroke doubled from \$12,980 in 1995 to \$25,950 in 2004.



# Cost Of CVD In South Carolina

Who paid for the hospitalization of patients suffering from cardiovascular disease?



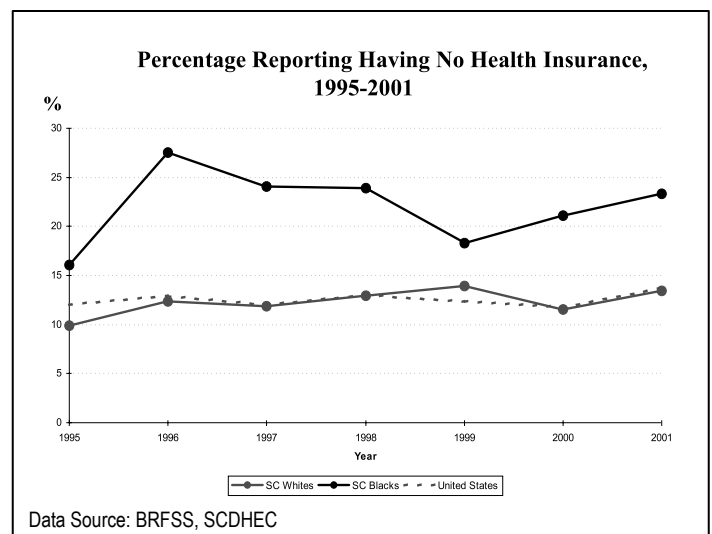
- In 2004, Medicare and Medicaid paid 67 percent of the \$2.8 billion in total hospital charges for cardiovascular diseases.
- For patients under age 65, Medicare, Medicaid and other government sources paid 42 percent of the \$1.1 billion in hospital charges for cardiovascular diseases.
- Medicare, Medicaid and other government sources paid for roughly 96 percent of the \$1.5 billion in hospital charges for people aged 65 and older.

# Barriers To Cardiovascular Disease Prevention

Statistical and clinical research have shown that good cardiovascular health is strongly influenced by a person's access to quality primary health care. Those with higher incomes are more likely to have health insurance, which means that they may be more likely to visit their doctors regularly for routine check ups. Regular physical exams are very important in preserving good overall health and for early detection and control of potentially serious health problems. Unfortunately, in the United States over 44 million people are either uninsured or underinsured, making it difficult for them to have regular ongoing health care. There are over 40 million people who do not have a particular place to go when they need health care or advice, especially persons aged 18 to 24. Only 76 percent of individuals below the poverty line had a regular source of primary health care. Furthermore, lack of transportation in rural areas may hinder many South Carolinians from accessing health care.

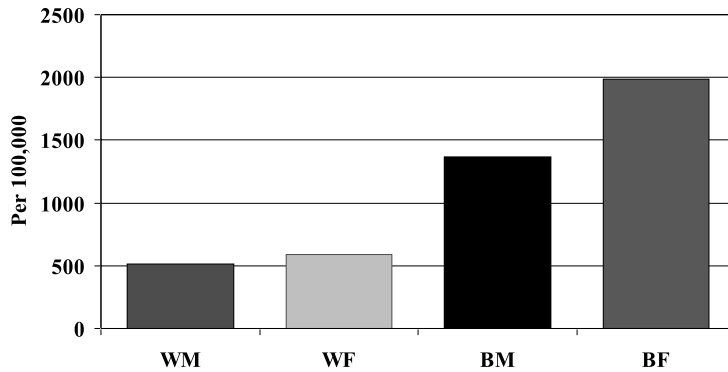
## No Health Insurance

- In South Carolina, 17 percent of adults have no health insurance, a rate that was greater than the national median of 14.8 percent in 2004.
- The prevalence rate of uninsured African-Americans was almost twice that of whites in South Carolina, and African-American men had the highest percentage without health insurance (28.5 percent).
- Multiple ER visits for cardiovascular disease might suggest that a patient lacks routine medical care for cardiovascular disease or lacks access to medical care. In 2004, the rate of multiple ER visits for CVD for African-Americans was three times the rate for whites. Women of both races had a higher rate of multiple ER visits than either African-American or white men.



# Barriers To Cardiovascular Disease Prevention

**Rates\* of Patients with Multiple  
Emergency Room Visits for CVD, SC, 2004**



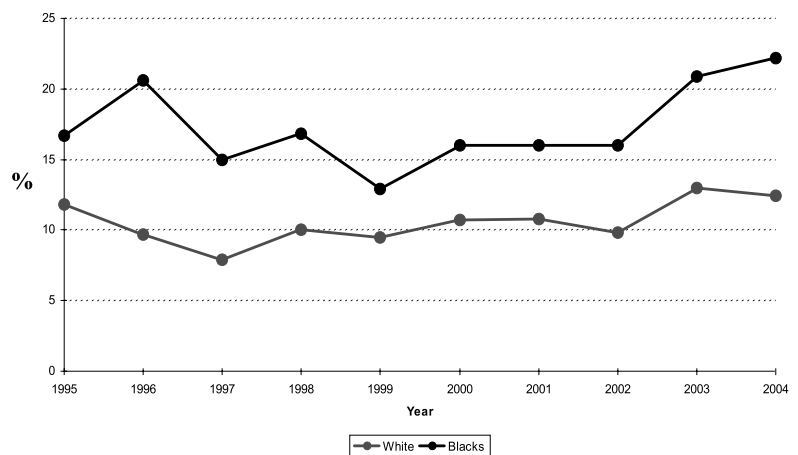
\*Age-adjusted to year 2000 population  
Data Source: Hospital Discharge Survey, SC Budget & Control Board,  
Office of Research & Statistics



## Health Care Cost

- When South Carolinians were asked if there was a time during the last 12 months when they needed to see a doctor, but could not because of cost, 15.2 percent replied that this was a problem in 2004. South Carolina is higher than the national average of 13.4 percent.
- The percentage of South Carolinians who did not see a doctor within the last year because of cost has remained approximately 12 percent with a slight increase for 2004.
- African-Americans have consistently reported the problem of high cost when needing to see a doctor in South Carolina.

**Percentage Reporting Having Need to See Doctor  
But Could Not Because of Cost in the Past Year, 1995-2004**



Data Source: BRFSS, SCDHEC

# Data Sources And Methods

The data presented in this report were compiled from a variety of sources including vital records, hospital discharge data, emergency room records, and the Behavioral Risk Factor Surveillance System (BRFSS). This section provides definitions, sources of data, and methods used in this report.

## Population Data

Population data are mid-year population estimates for each calendar year from the South Carolina Budget and Control Board, Office of Research and Statistics.

## Mortality Data

The South Carolina Department of Health and Environmental Control, Office of Public Health Statistics and Information Services, Division of Vital Records provided mortality data in this report based on information included on death certificates. The information is used to describe attributes of the decedent, including age, sex, and place of residence, as well as the underlying causes of death. The underlying cause of death was used for all analyses in this report. Standard cause specific death rates were calculated by dividing the number of deaths due to a specific cause, such as coronary heart disease or stroke, by the total number of people in the population, age-adjusted to the year 2000 United States population. Mortality data is classified according to the International Classification of Diseases (ICD). New revisions of the ICD are implemented periodically so that the classification reflects advances in medical services. Starting with 1999, the cause of death classification was based on the ICD 10<sup>th</sup> revision (ICD-10). ICD codes for the diseases in this report were based on recommendations from the National Center of Health Statistics and Healthy People 2010 Objectives. The ICD-10 codes used for analysis in this report were: cardiovascular disease I00-I78; coronary heart disease I11, I20-I25; and stroke I60-I69.

Classification and rule changes impact cause-of-death trend data by shifting deaths away from some cause-of-death categories and into others. Comparability ratios measure the effect of changes in classification and coding rules. Comparability ratios are computed by the National Center for Health Statistics from the results of dual coding of certificates according to the old and the new procedures. For selected causes of death, the ICD-9 codes used to calculate death rates for 1980 through 1998 differ from the ICD-9 codes most nearly comparable with the corresponding ICD-10 cause-of-death categories. To address this source of discontinuity, mortality statistics before 1999 were recalculated, using the comparability ratios in the following table:

<b>Disease</b>	<b>Comparability Ratio</b>
Cardiovascular Disease	0.9981
Coronary Heart Disease	0.9914
Stroke	1.0588

# Data Sources And Methods

## Hospital Discharge Data

Information on each hospital discharge is reported to the South Carolina Budget and Control Board, Office of Research and Statistics. The principal discharge diagnosis is primarily the same one responsible for the admission; it was used for all analyses in this report except where noted. Rates of hospitalization (or discharges) are calculated by dividing the number of discharges with a specific diagnosis by the total population, age-adjusted to the year 2000 United States population. These data include ONLY those cases treated in South Carolina hospitals. Cases treated in hospitals outside of South Carolina are NOT included.

## Behavioral Risk Factor Surveillance System (BRFSS) Survey

The BRFSS is a random digit dialed telephone survey of South Carolina adults who are 18 years of age or older. First administered in 1984, it is conducted on an ongoing basis each year, and is used to collect information about the risk factors and risk behaviors related to the major causes of morbidity and mortality in South Carolina. The BRFSS is overseen by the South Carolina Department of Health and Environmental Control Bureau of Epidemiology, and is designed to estimate the prevalence of behavioral risk factors and some chronic conditions at the state level. BRFSS data has limitations in terms of its capacity to obtain representation of all of the state's regions and population groups; therefore, county-specific percentages were calculated by combining adjacent counties to achieve an adequate sample size. Due to sample size limitations, only overall county-specific information could be calculated.

## Age-Adjustment

The age distribution of a population changes over time and from place to place. Heart disease, stroke, and some other diseases are more common in older people; therefore, comparing disease rates across populations or periods of time can be misleading if the age distributions of the populations being compared are different. Age adjustment is used to account for the changing age distribution of the population. In this report, all rates have been standardized to the United States population in the year 2000.

## Population-Adjustment

Due to small numbers in the population estimates for other racial and ethnic groups, African-Americans and Caucasians are the only racial categories described in this report and, for brevity's sake, will be referred to as African-Americans and whites. Minorities comprise 31 percent of South Carolina's population, with African-Americans comprising 98 percent of this group.

# Data Resources For Cardiovascular Disease

The purpose of this section is to outline heart disease and stroke data resources in South Carolina. It should be noted that these efforts are not all inclusive. Anyone wishing to provide information can send contributions to DHEC's Bureau of Community Health and Chronic Disease Prevention, Office of Chronic Disease Epidemiology.

## **DHEC's Office of Chronic Disease Epidemiology**

[http://www.scdhec.gov/hs/epidata/county\\_reports.htm](http://www.scdhec.gov/hs/epidata/county_reports.htm)

(803) 545-4928

1777 St. Julian Place  
Columbia, South Carolina 29204

## **American Heart Association, Mid-Atlantic Affiliate**

<http://americanheart.org>

(803) 738-9540

520 Gervais Street, Suite 300  
Columbia, South Carolina 29201

## **South Carolina Stroke Task Force**

c/o Carolyn Bivona, Director, State Health Alliances

American Heart Association, Mid-Atlantic Affiliate

<http://americanheart.org>

(803) 738-9540

520 Gervais Street, Suite 300  
Columbia, South Carolina 29201

## **The Carolinas Center for Medical Excellence**

<http://www.mrnc.org>

(803) 251-2215

246 Stoneridge Drive  
Suite 200  
Columbia, South Carolina 29210

# Data Resources For Cardiovascular Disease

## **Tri-State Stroke Network**

<http://www.tristatestrokenetwork.org>  
(919) 707-5366

NC Heart Disease and Stroke Prevention Branch  
1915 Mail Service Center  
Raleigh, North Carolina 27699

## **Medical University of South Carolina (MUSC), Hypertension Initiative**

<http://www.musc.edu>  
(843) 876-1141

135 Cannon Street  
Suite 305  
P.O. Box 250835  
Charleston, South Carolina 29425

## **The South Carolina Primary Health Care Association**

<http://www.scphca.org>  
(803) 788-2778

2211 Alpine Road Extension  
Columbia, South Carolina 29223



# Glossary

**Acute myocardial infarction (AMI):** See heart attack.

**Blood cholesterol:** The blood concentration of a family or lipid or “family” molecular compounds obtained directly from the diet or produced in the body from fatty dietary components. Subtypes of cholesterol differ in their relation to CVD risk; high-density lipoprotein (HDL) cholesterol is considered “good,” and low-density (LDL) cholesterol is considered “bad.”

**Body mass index (BMI):** A measurement of the relative percentages of fat and muscle mass in the human body, in which weight (in kilograms) is divided by height (in meters); the result is used as an index of obesity.

**Cardiac arrest:** The sudden stopping of heartbeat and cardiac function due to electrical malfunction of the heart, resulting in the loss of effective circulation.

**Cardiovascular disease(s) or CVD:** May refer to any of the disorders that can affect the circulatory system, but often means coronary heart disease (CHD), heart failure, and stroke, taken together.

**Cardiovascular health (CVH):** A combination of favorable health habits and conditions that protects against the development of cardiovascular diseases.

**Coronary heart disease (CHD):** Heart disease caused by impaired circulation in one or more coronary arteries, often manifesting as chest pain (angina pectoris) or heart attack.

**CPR:** Cardiopulmonary resuscitation – an emergency procedure, often used after cardiac arrest, in which cardiac massage, artificial respiration, and drugs are used to maintain the circulation of oxygenated blood to the brain.

**Diabetes (or diabetes mellitus):** A metabolic disorder resulting from insufficient production of utilization of insulin, which commonly leads to cardiovascular complications.

**Health disparities:** Differences in the burden and impact of disease among different populations, defined, for example, by sex, race, or ethnicity, education, income, disability, place of residence, or sexual orientation.

**Healthy People 2010:** A document that presents health-related goals and objectives for the United States to be achieved by the year 2010.

**Heart attack:** An acute event in which the heart muscle is damaged because of a lack of blood flow from the coronary arteries, typically accompanied by chest pain and other warning signs, but sometimes occurring with no recognized symptoms (i.e., “silent heart attack”).

**Heart disease:** Any affliction that impairs the structure of function of the heart (e.g., atherosclerotic and hypertensive diseases, congenital heart disease, rheumatic heart disease, cardiomyopathies).

# Glossary

**High blood pressure:** A condition in which the pressure in the arterial circulation is greater than desired and associated with increased risk for heart disease, stroke, chronic kidney disease, and other conditions; blood pressure is considered “high” if systolic pressure (measured at the peak of contraction of the heart) is  $\geq 140$  mm Hg or if diastolic pressure (measured at the fullest relaxation of the heart) is  $\geq 90$  mm Hg.

**Hypertension:** See high blood pressure.

**Morbidity:** The total number of cases of disease present in a population at a given time.

**Mortality rate:** Rate of death expressed as the number of deaths occurring in a population of a given size within a specified time interval (e.g., 265 annual deaths from heart disease per 100,000 U.S. Hispanic women, 1991-1995).

**Policy and environmental change:** An intervention approach to reducing the burden of chronic diseases that focuses on enacting effective policies (e.g., laws, regulations, formal and informal rules) or promoting environmental change (e.g., changes to economic, social, or physical environments).

**Risk behavior:** A behavioral pattern associated with increased frequency of specified health problems; for example, high LDL cholesterol, high blood pressure, and diabetes are all associated with CVD.

**Risk factor:** An individual characteristic associated with increased frequency of specified health problems; for example, high LDL cholesterol, high blood pressure, and diabetes are all associated with CVD.

**Stroke:** Sudden interruption of blood supply to the brain caused by an obstruction or the rupture of a blood vessel.



*The Heart of*  
**South Carolina**  
[www.scdhec.gov/cvh](http://www.scdhec.gov/cvh)

